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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/695,461

10/28/2003

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01/23/2009

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FORT COLLINS, CO 80527-2400

EXAMINER

ZHEN, LI B

ART UNIT

PAPER NUMBER

2194

NOTIFICATION DATE

DELIVERY MODE

01/23/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|                              |                                      |                                    |  |
|------------------------------|--------------------------------------|------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/695,461 | <b>Applicant(s)</b><br>KUNO ET AL. |  |
|                              | <b>Examiner</b><br>LI B. ZHEN        | <b>Art Unit</b><br>2194            |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-16, 18, 19, 21-23 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-11, 13-16, 19, 21-23 and 25-28 is/are rejected.
- 7) ☒ Claim(s) 6, 12 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-4, 6-16, 18, 19, 21-23 and 25-28 are pending in the application.

### ***Response to Arguments***

2. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Allowable Subject Matter***

3. Claims 6, 12 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-4, 7-11, 13-16, 19, 21-23 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over “A Planner for Composing Services Described in DAML-S” to Sheshagiri et al. [hereinafter Sheshagiri, previously cited] in view of “DAML-S: Semantic Markup for Web Services” [hereinafter DAML].**

6. As to claim 1, Sheshagiri teaches a processor-implemented method for interfacing with a distributed computing service [composes atomic/basic services described in DAML-S [4] into a composite service; Abstract], comprising:

accessing an ontology specification [DAML-S uses DAML+OIL to describe a set of ontologies for characterizing web services; Section 3] describing messages of the distributed computing service [DAML+OIL helps us to describe explicit ontologies for capturing domain language; Section 2];

accessing a semantic interpretation specification that describes rules for semantically handling the messages [used the Java Expert Shell System (JESS) to implement the planner and a set of JESS rules that translate DAML-S descriptions of atomic services into planning operator; Section 1], as specified in the ontology specification, with the distributed computing service [DAML-S specifications; Section 4];

entering the semantic interpretation specification into a rules engine adapted for providing processor executable procedures [used the Java Expert Shell System (JESS) to implement the planner and a set of JESS rules that translate DAML-S descriptions of atomic services into planning operator; Section 1 and Section 4];

obtaining a set of procedures from the rules engine for interacting with the distributed service based on the semantic interpretation specification [transform services encoded as VSO triples into a set of facts that form the planning operator; Section 4 and translate DAML-S descriptions of atomic services into planning operators; Section 1 and Section 7.3]. Sheshagiri does not specifically teach receiving a request for interfacing with the distributed service and interfacing with the distributed computing

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service using the set of procedures in response to the request, wherein the interfacing comprises forming distributed computing service messages based on the ontology specification.

However, DAML teaches automatic web service discovery, automatic web service invocation, automatic Web service composition and interoperation [pp. 1 – 2, Section 2], receiving a request for interfacing with the distributed service [service request; Section 4, pp. 4 – 5] and interfacing with the distributed computing service using the set of procedures in response to the request [process can have any number of inputs, representing the information that is, under some conditions, required for the execution of the process; Section 5.1, pp. 9 – 14], wherein the interfacing comprises forming distributed computing service messages based on the ontology specification [grounding will specify a communication protocol, message formats, and other service-specific details such as port numbers used in contacting the service; p. 4, second paragraph].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Sheshagiri to incorporate the features of DAML. One of ordinary skill in the art at the time the invention was made would have been motivated to make the combination because this enable users to locate, select, employ, compose, and monitor Web-based services automatically [p. 1, 4th paragraph].

7. As to claim 7, Sheshagiri as modified teaches an apparatus, comprising:

a data transfer interface for providing data connections to a distributed computing service [Section 1 of Sheshagiri]; and

a processor arranged to:

access an ontology specification [DAML-S uses DAML+OIL to describe a set of ontologies for characterizing web services; Section 3 of Sheshagiri] describing messages of the distributed computing service [DAML+OIL helps us to describe explicit ontologies for capturing domain language; Section 2 of Sheshagiri];

access a semantic interpretation specification that describes rules for semantically handling the messages [used the Java Expert Shell System (JESS) to implement the planner and a set of JESS rules that translate DAML-S descriptions of atomic services into planning operator; Section 1 of Sheshagiri], as specified in the ontology specification [DAML-S specifications; Section 4 of Sheshagiri], used to interface with the distributed computing service [Section 5.1, pp. 9 – 14 of DAML];

enter the semantic interpretation specification into a rules engine adapted for providing processor executable procedures [used the Java Expert Shell System (JESS) to implement the planner and a set of JESS rules that translate DAML-S descriptions of atomic services into planning operator; Section 1 and Section 4 of Sheshagiri];

obtain a set of procedures from the rules engine for interacting with the data transfer service based on the semantic interpretation specification [transform services encoded as VSO triples into a set of facts that form the planning operator; Section 4 and translate DAML-S descriptions of atomic services into planning operators; Section 1 and Section 7.3 of Sheshagiri]; and

interface with the distributed computing service [pp. 1 – 2, Section 2 of DAML] via the data transfer interface using the set of procedures [process can have any number of inputs, representing the information that is, under some conditions, required for the execution of the process; Section 5.1, pp. 9 – 14 of DAML], wherein the interfacing includes forming distributed computing service messages based on the ontology specification [grounding will specify a communication protocol, message formats, and other service-specific details such as port numbers used in contacting the service; p. 4, 2nd paragraph of DAML].

8. As to claim 13, this is a program product claim that corresponds to method claim 1; see the rejection to claim 1 above, which also meet this program product claim.

9. As to claim 19, Sheshagiri as modified teaches a system comprising:

means for providing a distributed computing service [Section 4 of DAML and Section 1 of Sheshagiri];

means for storing an ontology specification [DAML-S uses DAML+OIL to describe a set of ontologies for characterizing web services; Section 3 of Sheshagiri] describing messages of the distributed computing service [DAML+OIL helps us to describe explicit ontologies for capturing domain language; Section 2 of Sheshagiri];

means for storing a semantic interpretation specification that describes rules for semantically handling the messages [used the Java Expert Shell System (JESS) to implement the planner and a set of JESS rules that translate DAML-S descriptions of

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atomic services into planning operator; Section 1 of Sheshagiri], as specified in the ontology specification [DAML-S specifications; Section 4 of Sheshagiri], used to interface with the distributed computing service [Section 5.1, pp. 9 – 14 of DAML];

means for accessing the semantic interpretation specification for entry into a rules engine adapted for providing processor executable procedures [used the Java Expert Shell System (JESS) to implement the planner and a set of JESS rules that translate DAML-S descriptions of atomic services into planning operator; Section 1 and Section 4 of Sheshagiri];

means for accessing an ontology describing messages of the distributed computing service [Section 1 and Section 4 of Sheshagiri];

means for obtaining a set of procedures from the rules engine for interacting with the distributed service based on the semantic interpretation specification [transform services encoded as VSO triples into a set of facts that form the planning operator; Section 4 and translate DAML-S descriptions of atomic services into planning operators; Section 1 and Section 7.3 of Sheshagiri]; and

means for forming distributed computing service messages based on the ontology for use in the set of procedures [grounding will specify a communication protocol, message formats, and other service-specific details such as port numbers used in contacting the service; p. 4, 2nd paragraph of DAML]; and

means for interfacing [pp. 1 – 2, Section 2 of DAML] with the distributed computing service using the set of procedures [process can have any number of inputs,



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representing the information that is, under some conditions, required for the execution of the process; Section 5.1, pp. 9 – 14 of DAML].

10. As to claim 21, Sheshagiri as modified teaches a method of interfacing with a distributed computing service [Section 4 of DAML and Section 1 of Sheshagiri] comprising:

receiving a message from the distributed computing service [offers of the service providers; Section 4 of DAML];

identifying a message type of the message for processing of the message [Section 6.2.1 of DAML];

accessing an ontology specification [DAML-S uses DAML+OIL to describe a set of ontologies for characterizing web services; Section 3 of Sheshagiri] describing the message type [DAML+OIL helps us to describe explicit ontologies for capturing domain language; Section 2 of Sheshagiri];

accessing a semantic interpretation specification describing rules for semantically handling the messages [used the Java Expert Shell System (JESS) to implement the planner and a set of JESS rules that translate DAML-S descriptions of atomic services into planning operator; Section 1 of Sheshagiri], as specified in the ontology specification [DAML-S specifications; Section 4 of Sheshagiri], with the distributed computing service based on the message type [Section 6.2.1 of DAML];

entering the semantic interpretation specification into a rules engine adapted for providing processor executable procedures [used the Java Expert Shell System (JESS)]

to implement the planner and a set of JESS rules that translate DAML-S descriptions of atomic services into planning operator; Section 1 and Section 4 of Sheshagiri];

obtaining a set of procedures from the rules engine for interacting with the distributed service based on the semantic interpretation specification [transform services encoded as VSO triples into a set of facts that form the planning operator; Section 4 and translate DAML-S descriptions of atomic services into planning operators; Section 1 and Section 7.3 of Sheshagiri]; and

interfacing with the distributed computing service [pp. 1 – 2, Section 2 of DAML] using the set of procedures in response to the message [Section 5.1, pp. 9 – 14 of DAML], wherein the interfacing comprises forming a distributed computing service message based on the ontology specification and outputting the message [p. 4, 2nd paragraph of DAML].

11. As to claim 25, this is a system claim that corresponds to method claim 1; see the rejection to claim 1 above, which also meets this system claim.

12. As to claim 2, Sheshagiri teaches the distributed computing service comprises a Web service [web services; Section 3].

13. As to claim 3, Sheshagiri teaches the semantic interpretation specification comprises an expert system interpretable specification [used the Java Expert Shell

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System (JESS) to implement the planner and a set of JESS rules that translate DAML-S descriptions of atomic services into planning operator; Section 1].

14. As to claim 4, Sheshagiri teaches the semantic interpretation specification comprises rules usable with a rule-based expert system [used the Java Expert Shell System (JESS); Section 1].

15. As to claim 8, Sheshagiri as modified teaches the data transfer interface comprises a network interface [p. 17, 2nd paragraph of DAML and Section 1 of Sheshagiri].

16. As to claims 9 – 11, these are apparatus claims that correspond to method claims 2 – 4, respectively; see the rejection to claims 2 – 4 above, which also meet these apparatus claims.

17. As to claims 14 – 16, these are program product claims that correspond to method claims 1 – 4, respectively; see the rejection to claims 1 – 4 above, which also meet these program product claims.

18. As to claims 22 and 23, see the rejection to claims 2 and 4 above.

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19. As to claims 26 and 28, these are system claims that correspond to method claims 2 and 4, respectively; see the rejection to claims 2 and 4 above, which also meet these system claims.

20. As to claim 27, Sheshagiri teaches a data storage arrangement is adapted for providing the semantic interpretation specification via a network [Section 3].

#### **CONTACT INFORMATION**

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571)272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Li B. Zhen/  
Primary Examiner, Art Unit 2194

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